

AMENDMENTS TO THE CLAIMS

1. (Currently amended) An oscillator for outputting an oscillation signal of a voltage control oscillator via a transfer line, the oscillator comprising:

a variable resonator that is electro-magnetically connected to the transfer line, receives at least one part of the oscillation ~~signal~~ signals, and mechanically changes a resonant frequency in response to a control signal;

a detector that detects a resonant output of the variable resonator; and

a correcting circuit that transmits the control signal to the variable resonator, receives ~~the an~~ output from the detector while sweeping the resonant frequency, and corrects a frequency of the oscillation signal to a desired frequency under the control of a modulation voltage sent to the voltage control oscillator.

2. (Currently amended) The An oscillator according to Claim 1, wherein the variable resonator comprises:

a resonator; and

a rotor that is arranged in proximity of the resonator, the rotor having a shape that changes in a ~~and changes the shape thereof in the~~ circumferential direction thereof

wherein the rotation of the rotor changes ~~the a~~ distance between the resonator and the rotor, and changes the resonant frequency of the resonator ~~changes~~.

3. (Currently amended) The An oscillator according to Claim 1, wherein the variable resonator is a cavity resonator, a part of a cavity ~~forming of~~ the cavity resonator forming a rotor and having a shape that changes in a ~~is a rotor formed by changing the shape thereof in the~~ circumferential direction thereof, wherein the rotation

of the rotor changes ~~the~~ an inner dimension of the cavity, and changes the resonant frequency of the cavity resonator ~~changes~~.

4. (Currently amended) The ~~An~~ oscillator according to Claim 2 ~~or 3~~, wherein the rotor has a wall ~~projected stripe~~ that continuously increases ~~the~~ in height thereof on the outer circumference on the undersurface thereof ~~of a disc portion~~.

5. (Currently amended) The ~~An~~ oscillator according to Claim 2 ~~or 3~~, wherein the rotor has a wall that changes its ~~projected stripe with an equal height, with which~~ the position in the radial direction ~~changes from the~~ an outer circumference to ~~the~~ an inner circumference on the undersurface thereof ~~of a disc portion, in relation to the change in the circumferential direction~~.

6. (Currently amended) The ~~An~~ oscillator according to Claim 2 or 3, wherein the rotor has a wall ~~projected stripe~~ that continuously increases ~~the~~ in height thereof throughout ~~the~~ half of ~~the~~ an outer circumference on the undersurface thereof ~~of a disc portion~~ and continuously reduces ~~the~~ in height thereof throughout ~~the~~ a remaining half.

7. (Currently amended) The ~~An~~ oscillator according to Claim 1, wherein the variable resonator comprises:

a resonator that is placed in a cavity; and

a piezoelectric actuator that is arranged facing the resonator, wherein ~~the~~ expansion and contraction of the piezoelectric actuator changes the inner dimension of the cavity, ~~and so as to change~~ the resonant frequency of the resonator ~~thus changes~~.

8. (Currently amended) An oscillator ~~according to Claim 1, further for~~ outputting an oscillation signal of a voltage control oscillator via a transfer line, the oscillator comprising:

a variable resonator that is electro-magnetically connected to the transfer line, receives at least one part of the oscillation signal, and mechanically changes a resonant frequency in response to a control signal;

a detector that detects a resonant output of the variable resonator; and in ~~place of the correcting circuit,~~

an abnormality detecting circuit that transmits the control signal to the variable resonator, receives ~~the~~ an output from the detector while sweeping the resonant frequency to the variable resonator, detects the oscillation frequency of the voltage control oscillator, and detects ~~the~~ an abnormality of ~~the~~ an oscillation frequency and/or a modulation width of the oscillation frequency.

9. (Currently amended) ~~The~~ An oscillator according to Claim 1, wherein the variable resonator comprises:

a resonator; and

a variable reactance device, the variable reactance device ~~comprises:~~ comprising a transfer line that is electro-magnetically connected to the resonator; and a rotor that is arranged in proximity of the transfer line, the rotor having a shape that changes in a ~~and changes the shape thereof in the circumferential direction thereof,~~ wherein the rotation of the rotor changes ~~the~~ a reactance ~~in view~~ of the transfer line, and changes the ~~[[a]]~~ resonant frequency of the variable resonator ~~changes~~.

10. (Currently amended) ~~The~~ An oscillator according to Claim 9, wherein at least one part of the rotor facing the transfer line is conductive, and capacitance is generated between the transfer line and the rotor.

11. (Currently amended) The An oscillator according to Claim 10, wherein the rotor has a wall ~~projected stripe~~ that is meandered ~~roughly like a ring~~ in the a radial direction on the an undersurface of the rotor ~~a disc portion~~.

12. (Currently amended) The An oscillator according to Claim 10, wherein the rotor has an undersurface with a wall, the wall having a thickness that is formed by ~~extending an outer wall from the undersurface of a disc portion, and the thickness of the outer wall~~ periodically changes in the circumferential direction.

13. (Currently amended) The An oscillator according to Claim 10, wherein the rotor has an undersurface with a wall, the wall having a height that is formed by ~~extending an outer wall from the undersurface of a disc portion, and the height of the outer wall~~ periodically changes in the circumferential direction.

14. (Currently amended) The An oscillator according to Claim 10, wherein the rotor has an outer circumference with projected and caved portions that are repeatedly formed ~~in the circumferential direction on the outer circumference thereof,~~ and

the transfer line is a micro strip line and the capacitance is generated between an opening end of the micro strip line and the outer-circumferential surface of the rotor.

15. (Currently amended) The An oscillator according to Claim 10 ~~any one of Claims~~, wherein the transfer line is a coplanar line, and capacitance is generated between a line conductor of the coplanar line and the rotor and between a ground conductor of the coplanar line and the rotor.

16. (Currently amended) ~~The An~~ oscillator according to Claim 15, wherein a pair of ~~the~~ rotors is arranged to sandwich the transfer line, and the pair of rotors are rotated in conjunction therewith.

17. (Currently amended) ~~The An~~ oscillator according to Claim 9, wherein the rotor comprises a dielectric having a wall ~~projected stripe~~ that is ~~roughly~~ ring-shaped on ~~the an~~ undersurface ~~thereof of a disc portion~~ and is meandered in ~~the a~~ radial direction, and the transfer line comprises a coplanar line.

18. (Currently amended) ~~The An~~ oscillator according to Claim 9, wherein the rotor comprises a dielectric, the transfer line comprises a coplanar line, and the rotation of the rotor changes the distance between the rotor and the transfer line.

19. (Currently amended) A radar apparatus comprising:
an oscillator according to Claim 1 ~~any one of Claims 1 to 18~~.

20. (Currently amended) A radar apparatus comprising:
an oscillator according to Claim 1 ~~any one of Claims 2 to 6 or any one of Claims 9 to 18~~, wherein the rotor comprises a primary radiator, the rotation of the rotor changes a resonant frequency of the variable resonator, and the primary radiator scans radar waves radiated from the primary radiator in ~~the a~~ radial direction thereof.

21. (New) The oscillator according to Claim 3, wherein the rotor has a wall that continuously increases in height on the outer circumference on the undersurface thereof.

22. (New) The oscillator according to Claim 3, wherein the rotor has a wall that changes its position in the radial direction from an outer circumference to an inner circumference on the undersurface thereof.

23. (New) The oscillator according to Claim 3, wherein the rotor has a wall that continuously increases in height throughout half of an outer circumference on the undersurface thereof and continuously reduces in height throughout a remaining half.